

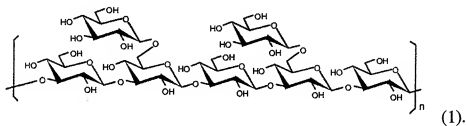
## Remarks

Claims 1, 5-7 and 10 are pending in the application, Claim 11 has been deemed withdrawn by the Examiner. For reasons as set forth below, Applicants submit that reconsideration and allowance of the claims is appropriate.

### 35 U.S.C. §103 Claim Rejection

Claim 1, 5-7 and 10 are rejected under 35 U.S.C. 103(a) by the Examiner as being allegedly unpatentable over Kong et al. Applicants respectfully traverse this rejection for the reasons as stated below.

First, Kong et al. disclose oligosaccharides extracted from *Lentinus edodes*, an asian edible fungi. More precisely, Kong et al. disclose the synthesis of a core segment of *Lentinus edodes* polysaccharide (page 5, line 1-2), which has the formula given in page 5:



According to Kong et al.: “Because of different structures of oligosaccharides in antigens connected with different diseases, it is very difficult to synthesize certain oligosaccharides using existing methods. So far, no reports have been found on synthesis of oligosaccharide repeated unit of *Lentinus edodes* polysaccharide.”

In this regard, Kong et al. disclose a detailed method for synthesizing the polysaccharide of formula (1) (see pages 26-36), i.e. to synthesize an oligosaccharide consisting of a main chain of 5 glucose units which is branched with two glucose unit.

As mentioned by Kong et al. (see the previous quote), this synthesis is long and difficult: not less than 10 pages of description are necessary to describe the synthesis of the compound of formula (1). In addition, said synthesis only permits to obtain branched

oligosaccharides, as disclosed in formula (1): unbranched oligosaccharide can never be obtained following the teaching of Kong et al.

However, in the description and in the claims, Kong et al. tend to cover a large family of compounds, including unbranched oligosaccharides. Since these compounds are not obtainable following the synthesis proposed by Kong et al. and that, according to Kong et al., the synthesis of oligosaccharides is very difficult, it is respectfully considered by the Applicant that the teaching of Kong et al. is only a mere statement and cannot serve as basis for an obviousness rejection: the skilled person, having knowledge of Kong et al. and wanting to test the activity of unbranched oligosaccharides would never have succeeded since he would never have obtained these oligosaccharides...

Accordingly, the claimed invention is thus non obvious in view of Kong et al. for at least this reason.

Second, King et al. do not provide any experimental data supporting the alleged anti-tumor activity of the oligosaccharides of formula (1). Page 47 of Kong et al., it can be read:

*“Said oligosaccharide according to the present invention is able to notably suppress not only S180 and other homotransplanted cancers, but also growth of homologous cancers and spontaneous cancers. Moreover, it has preventive effect on chemical carcinogenesis and viral carcinogenesis.”*

- Since the singular form (“said oligosaccharide”) is employed by Kong et al., it is likely that only one oligosaccharide has been tested. Since the nature of the oligosaccharide has been tested is not specified, it can be assumed that the terms “said oligosaccharide” refers to the oligosaccharide having formula (1) that has been previously described, i.e. a branched oligosaccharide.
- Second, no experimental data are provided by Kong et al.: the above quoted paragraph consists in a mere statement of an alleged anti-tumor activity of an undefined oligosaccharide, which is certainly the oligosaccharide of formula (1).

Accordingly, the only suggestion of Kong et al. is that a branched oligosaccharide having formula (1) extracted from the fungus *Lentinus edodes* might have an anti-tumor activity. This teaching correlates with the results disclosed in the Ning et al. reference, previously cited by the Examiner.

In conclusion, Kong et al.:

- do not disclose a method for synthesizing unbranched oligosaccharides; and
- do not provide any evidence for the anti-tumor activity of unbranched oligosaccharides.
- suggest that a particular branched oligosaccharide having formula (1) may have anti-tumor activity (but no evidence are provided), which correlates with the teaching of the Ning et al. reference.

Accordingly, Kong et al. do not provide any supplementary information compared to Ning et al., and the skilled person, having knowledge of Kong et al. in view of Ning et al. would thus have considered that only the branched oligosaccharides might have anti-tumor activity.

Consequently, since neither the two particular oligo- $\beta$ -(1,3)-glucans of the claimed invention nor their anti-tumor activity are disclosed, taught or suggested in Kong et al., claim 1 is non obvious.

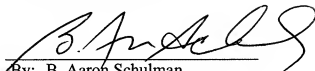
Since claim 1 is non obvious, claims 5-7 and 10, which depend on claim 1, are also non obvious.

For reasons as stated above, Applicants submit that the present claims are patentable over the cited reference, and that the present application is in proper form for allowance.

Accordingly, withdrawal of the rejections and prompt allowance of the above claims are thus respectfully requested.

Respectfully submitted,

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